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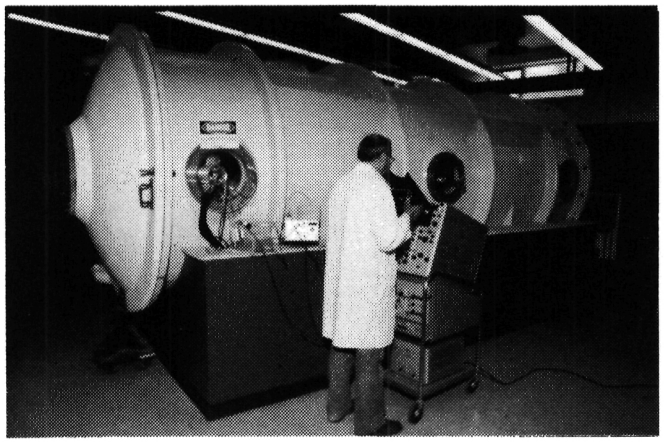
ADVANCED MPD THRUSTER RESEARCH

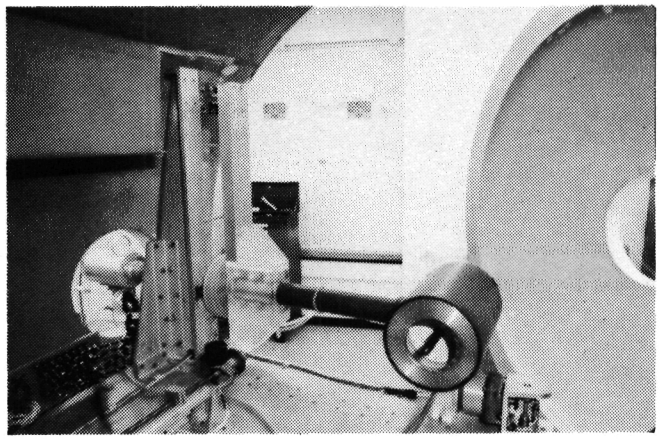
Magnetoplasmadynamic (MPD) arcjets for use as thrusters on NASA spacecraft are being investigated in tests underway at Princeton University and JPL. Initial data obtained using argon as propellant (any noble gas could serve) indicate that MPD thrust densities over 1000 times higher than other electric propulsion systems can be attained at efficiencies well over 30 percent.

The test (begun at Princeton in 1976) employs a fiberglass vacuum tank and a swinging gate thrust stand which measures the impulse of the MPD discharge. The device operates in one-millisecond-long pulses and requires pulsed power levels up to several megawatts.

Advanced MPD thruster performance analysis is expected to continue in tandem at Princeton and JPL with the construction this year of JPL thruster and vacuum test laboratories. The NASA research project is being managed by JPL.



FIBERGLASS VACUUM CHAMBER HOUSING A SWINGING GATE THRUST STAND



THRUST STAND WITH INTEGRALLY MOUNTED MPD THRUSTER

MPD thruster system technology performance test facility.